

**AMENDMENTS TO THE DRAWINGS:**

Replacement drawings in compliance with 37 CFR §1.84 and 37 CFR §1.121 are being provided separately. Figures 1, 3, 4, 8A, 8B, 10A, and 10B have been amended for clarity and consistency. Annotated sheets with mark-ups and explanations for changes made to each amended drawing are being provided for the Examiner's convenience.

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**REMARKS**

The specification has been amended to correct minor typographical and formatting errors, as well as inconsistencies in references made to items in the drawings. A Replacement Specification, and a marked-up annotated copy, accompanies this Amendment. No new matter has been added.

Replacement drawings are submitted in accordance with 37 CFR 1.121(d), along with annotated sheets. The amendments to the drawings were made for clarity and consistency. Fig. 9 has been amended to overcome the Examiner's objection. The reference to the semi-permeable membrane (32) has been removed from Fig. 9. The semi-permeable membrane surrounds the actuator, as noted on page 22 of the Specification.

The Examiner's objection to the information disclosure statement filed October 3, 2005 is not understood. As Applicant noted in the October 3, 2005 IDS filing, the several applied prior art references are already of record. Applicant filed the IDS in order to make the PCT Written Opinion of record.

The election requirement is noted. It is requested that the non-elected claims be maintained in the application, without further action, for possible rejoinder and/or for filing of a divisional application.

Claims 7 and 26 have been amended to address the 112 rejection. Also, independent claim 1 has been amended to further clarify the invention and to better distinguish the claimed invention from the prior art. Support is found in Figs. 1, 2a, 2b, 3, 5, 6, 6, 8a, and 8b.

Turning now to the art rejections, and considering first the rejection of claims 1-7 under 35 U.S.C. § 102(b) as being anticipated by Culp (U.S. Patent 5,192,197), independent claim 1 requires, in part, "a plurality of same or similarly sized individual actuators located in the chamber and in contact with the fluid; an activator for sequentially activating individual

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actuators, wherein each actuator, when activated, changes dimensions and exerts a displacing force on the housed fluid.” Culp doesn’t teach this. Culp teaches a pump that operates by the movement of waveplates, which are composed of a series of what Culp characterizes as “dimorphs”. According to Culp the dimorphs move by shear deformation caused by polarization due to the application of an electric field. The dimorphs are divided into two body portions (Fig. 1, items 4a,b) which are separated by electrodes (Fig. 1, items 8 and 6a,b). The Examiner contends that item 6 of Fig. 5 discloses a plurality of individual actuators. However, item 6 discloses “external ground film electrodes” which are components of the dimorphs. (col. 3, lines 38-46). Presumably, the Examiner intended to cite the dimorph body sections (4a,b) as disclosing the actuators of Applicant’s claim 1. In any event, neither the electrode (6) nor the dimorph body sections (4) disclose “a plurality of individual actuators... wherein each actuator, when activated, changes dimensions and exerts a displacing forced...”. In Culp, the dimorphs do not change dimensions, but merely move in position relative to one another. The actual dimensions of the dimorphs - including height, width, length, and volume - remain constant, as they are independent of the state of activation. (col. 3, lines 58-63). Furthermore, each dimorph is composed of two body sections that operate dependently on each other, rather than as individual actuators. Thus, Culp fails to teach all the features of independent claim 1, and therefore cannot be said to anticipate or render obvious claim 1 or claims 2-7 which depend on claim 1.

Turning to now the rejection of claims 1, 3, 4 and 15 under 35 U.S.C. 102(b) as being anticipated by da Costa (U.S. Patent 6,004,115), independent claim 1, as amended, requires, in part, “same or similarly sized actuators.” Da Costa does not disclose this feature. Rather, da Costa teaches a hermetic compressor whereby a gas is compressed from displacement into chambers of successively smaller volumes created by the movement of successively lower

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volume pistons. Thus, claim 1 cannot be said to be anticipated by da Costa. Moreover, there is no motivation to one having ordinary skill in the art to modify da Costa's compressor, concerned with creating high pressures, in such a way as to disclose Applicant's invention. Da Costa's principle of operation is based on the pistons being of successively smaller volumes. Actuators of same or similar size would render da Costa unsatisfactory for its intended purpose. Therefore, da Costa fails to anticipate or render obvious independent claim 1 or claims 3, 4 and 15 which depend thereon.

The rejection of claims 17 and 22 under 35 U.S.C. 103(a) as being unpatentable over either Culp or da Costa, also is in error. Claims 17 and 21 depend on independent claim 1. As noted *supra*, both Culp and da Costa fail to anticipate or render obvious independent claim 1 or any claims dependent thereon. Thus, neither Culp nor da Costa can be said to render obvious claims 17 or 22.

Turning finally to the rejection of claims 19-21 and 23-26 as being unpatentable over either Culp or da Costa in view of Chinn et al. (U.S. Patent 6,685,442), claims 19-21 and 23-26 are all directly or indirectly dependent upon claim 1. The deficiencies of both Culp and da Costa with respect to independent claim 1 are discussed above. Even assuming arguendo that Chinn et al. is as the Examiner states, no combination of either Culp or da Costa with Chinn et al. can render obvious independent claim 1 or any of claims 19-21 and 23-26 that depend thereon.

Having dealt with all the objections raised by the Examiner, the Application is believed to be in order for allowance. Early and favorable action is respectfully requested. the cost of the added claim fees accompanies this Amendment.

Form PTO-2038 authorizing credit card payment in the amount of \$60.00 to cover the cost of One Month Extension of Time accompanies this Amendment.

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In the event there are any fee deficiencies or additional fees are payable, please charge them (or credit any overpayment) to our Deposit Account Number 08-1391

Respectfully submitted,

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**CERTIFICATE OF MAILING**

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: MAIL STOP AMENDMENT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on

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**REPLACEMENT DRAWINGS**  
(Submitted with Amendment D)